

SAFETY AND HYGIENE REGULATIONS



UNIVERSITAT POLITÈCNICA DE CATALUNYA
BARCELONATECH
Servei de Prevenció de Riscos Laborals

ELECTRIC BURNERS

CODE

SHR 213

Date:

September 2012

Revision:

00

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DESCRIPTION OF AN ELECTRIC BURNER

An **electric burner** is an alternative to a Bunsen burner in laboratories that do not have a gas supply and above all within **fume cupboards**. In these cases, an electric burner should be used if it is suitable for the process, and according to the burner's working temperature range.

An example of this kind of burner is the **Medline BECELEC 2** model (see Photo 1):

- Temperature range: from 37°C to 920°C
- Diameter of the heating area: 130 mm
- Power: 500 W



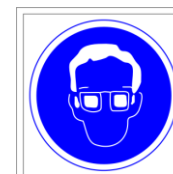
Photo 1

PERSONAL PROTECTION EQUIPMENT TO USE

- **Thermal protective gloves** for handling hot test tubes and Florence flasks, etc.
- **Chemical protective gloves** for handling chemical products.
- **Safety goggles**
- **A respiratory protection mask** for use when you work outside a fume cabinet, depending on the kind of reagents that you are working with. Consult the **safety data sheet** for the specific chemical product.
- To handle any chemical products, to use burners, etc., you must **wear a laboratory coat**.



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BEFORE USING AN ELECTRIC BURNER

- Place the burner on top of a non-combustible surface.
- Connect the equipment to the electricity supply. If you use an electric burner within a fume cupboard, connect it to one of the power outlets within the cupboard.
- Depending on the model of the electric burner, to heat Florence flasks, Erlenmeyer flasks or beakers you should use a stand, clamps with nuts, a tripod or ring with a nut and/or a wire mat. Specifically, for the Medline Becelec 2 model, the electric burner's own rack should be used (see Photo 2). Do not place Florence flasks or Erlenmeyer flasks directly on the burner.

Electric burners take approximately 4 minutes to heat up.

There should be approximately 10 cm between the surface to heat and the surface of the electric burner, to enhance air flow.



Photo 2

WHILE USING AN ELECTRIC BURNER

- When you are heating up test tubes, hold them in clamps. The clamps should be fixed to a stand. Move the tube gently and **point the mouth of the test tube away from you**, to avoid splashes of the liquid while it is boiling. In the specific case of the Medline Becelec 2 model, hold test tubes within the rack that protects against the heating element at a height of about 2 cm (see Photo 3).
- On completion of your work, **unplug the equipment from the electricity supply**.
- Once the equipment has cooled down, clean off any burnt material and other dirt that could have been left on the burner.

In the case of **spills of chemicals**:

1. **Disconnect the burner** and leave it to **cool**.
2. **Dry/clean up** the affected area **using absorbent paper towels**.

In the case of **splashes or burns**, consult the basic first aid advice on the prevention website (<https://www.upc.edu/prevencio/ca/accidents/primers-auxilis>). Carry out regular maintenance on the burner.



Photo 3



Absorbent paper towels

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INSTRUCTION MANUAL FOR THE ELECTRIC BURNER MODEL MEDLINE BECELEC 2

medline
scientific limited
User Guide
Electric Laboratory Burner
BECELEC 2

1 CHARACTERISTICS

- Power: 500 W
- Voltage: 230 V single phase + earth 50/60 Hz
- Fuse: 3.1A T L 250
- Classification manual: II
- The equipment should be unplugged when it is not in use.

2 USE

- The apparatus must be connected to a power outlet that is compatible with its technical characteristics and to an earth system.
- The apparatus must be placed on a non-combustible surface.
- A 20-cm space should be left around the electric burner to facilitate ventilation.
- Once the unit is plugged in, the "sector" indicator will light up.
- Turn the regulator clockwise until you reach the required position. Heating up time: 4 minutes.
- To generate a flame, use the flame gel and the additional stainless steel plate provided by MEDLINE.
- Please ensure correct use of the instrument. Any inappropriate use could compromise the safety of the instrument and its guarantee.
- The symbol means: Danger, hot surface.



3 PRACTICAL INFORMATION

- Pyrex test tubes that are heated with the Becelec burner do not need to be shaken, unlike in a conventional Bunsen burner. For optimal heating, keep the test tube in its stand above the centre of the burner and move it slightly from side to side until the liquid boils. Moving the tube away from the centre of the burner reduces the heat and prevents the liquid from boiling over.
- For experiments that require a flame (combustion of metals):
 - Always hold the stainless steel plate by the handle.
 - Add a small amount (5 ml) of flame gel to the centre of the plate, taking care not to block the small air hole.
 - Once the burner has heated up, put the plate directly onto it.
 - Wait 10 to 20 seconds for the flame gel to heat up and then cover the plate to prevent it from burning.

4 MAINTENANCE

- This apparatus does not require any scheduled or preventive maintenance.
- If any spills occur, follow these recommendations for cleaning the heating element and the stainless steel support:
 - Disconnect the apparatus from the electricity supply. Only clean the apparatus when it is cold.
 - Check that the drainage hole in the lower support is not blocked.
 - The inside of the support can be cleaned: remove any object or burnt residue from the mesh and the heating element.
 - The electrical control box does not require maintenance.

FOR ANY MALFUNCTIONS that are not described above, PLEASE CONTACT YOUR DISTRIBUTOR.